



Attorney Docket Number: FY.16653US0A

Applicant: Kishi

Title: METHOD FOR CONTROLLING MACHINE WITH CONTROL MODULE
OPTIMIZED BY IMPROVED EVOLUTIONARY COMPUTING

Application Number: 09/873,510

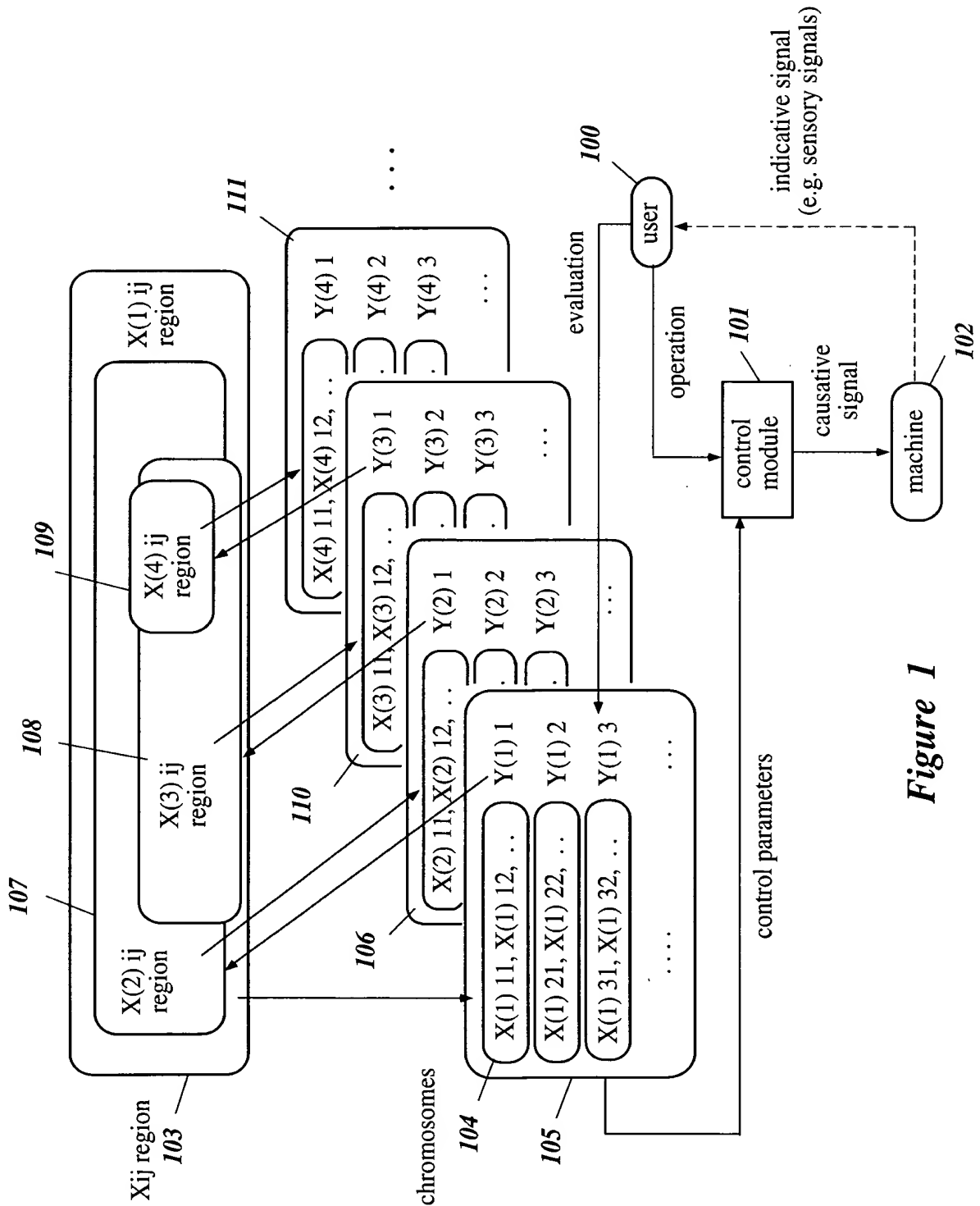


Figure 1

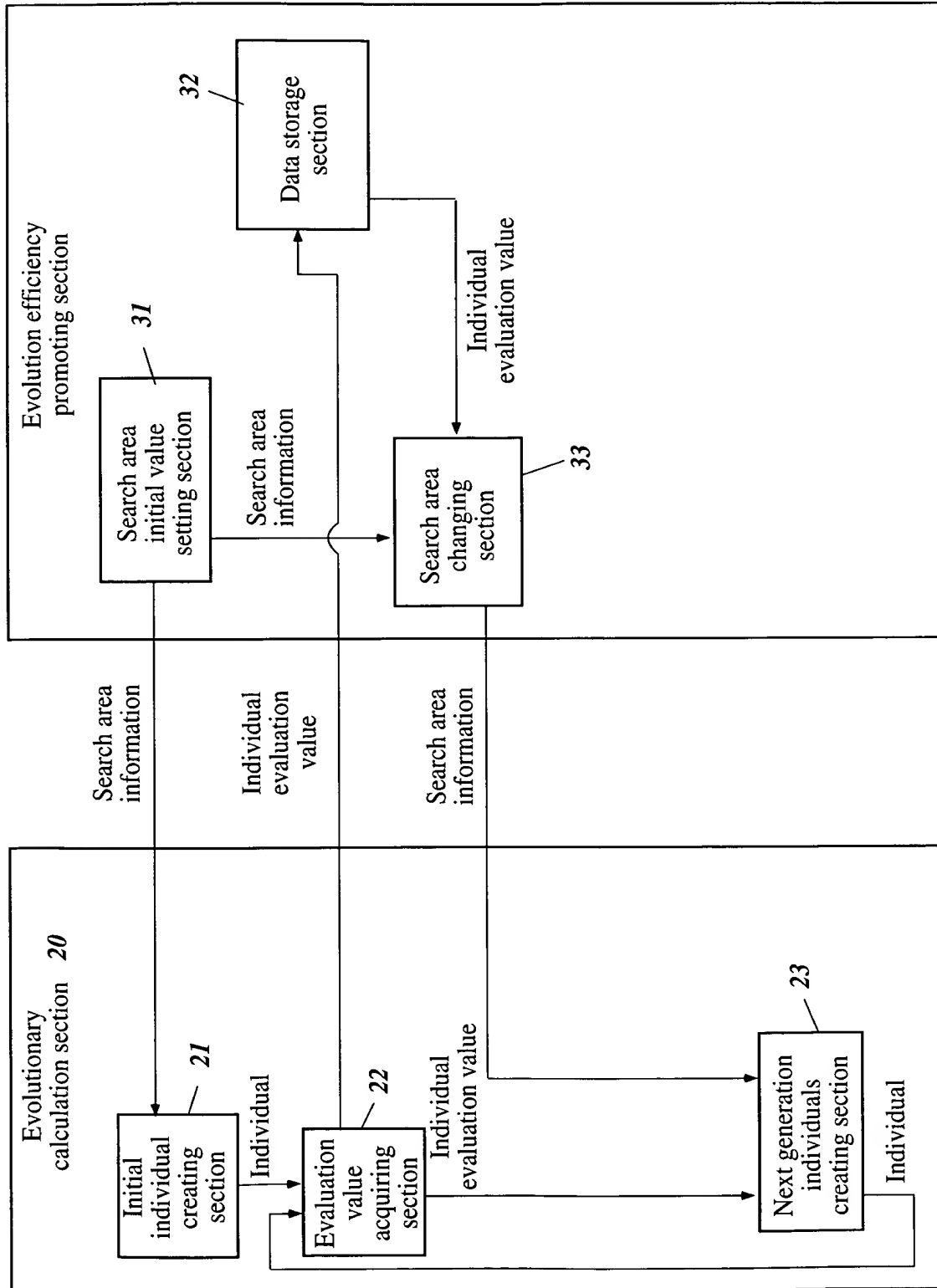


Figure 2

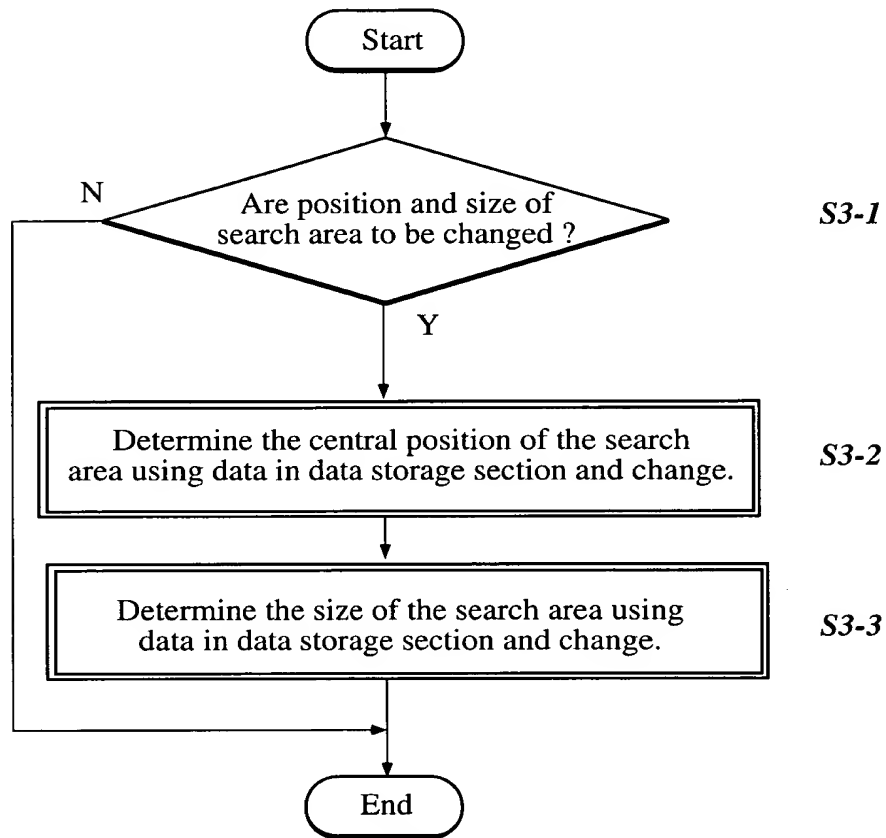


Figure 3

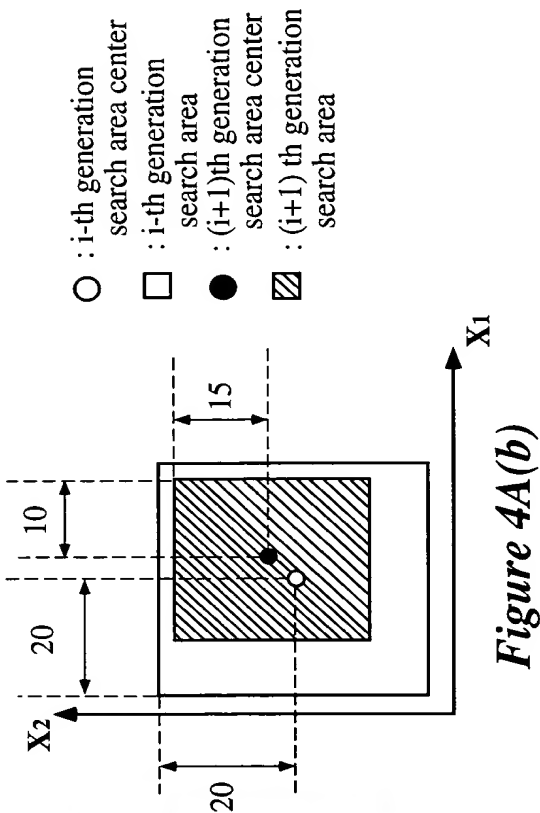


Figure 4A(a)

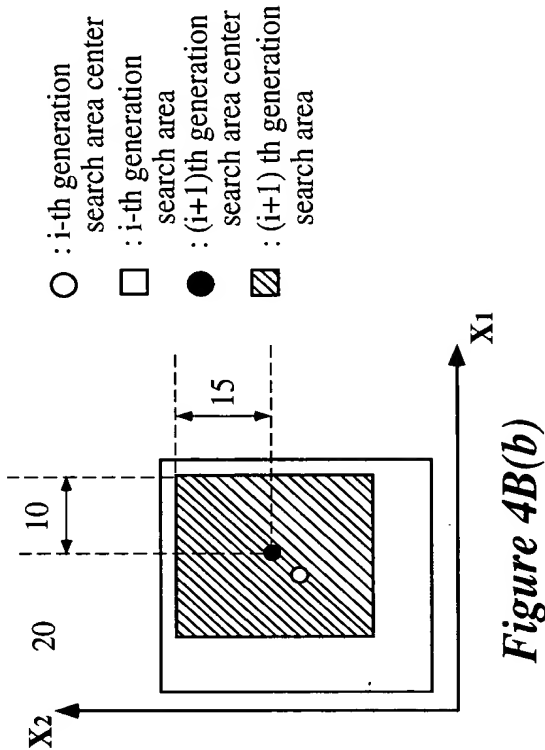
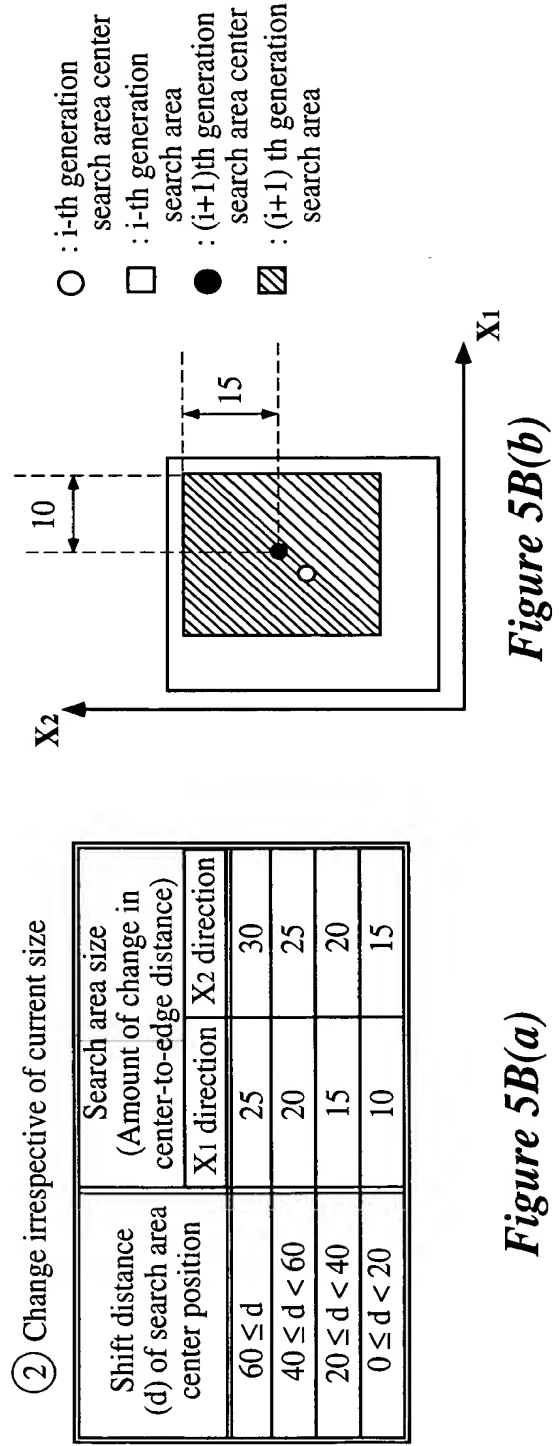
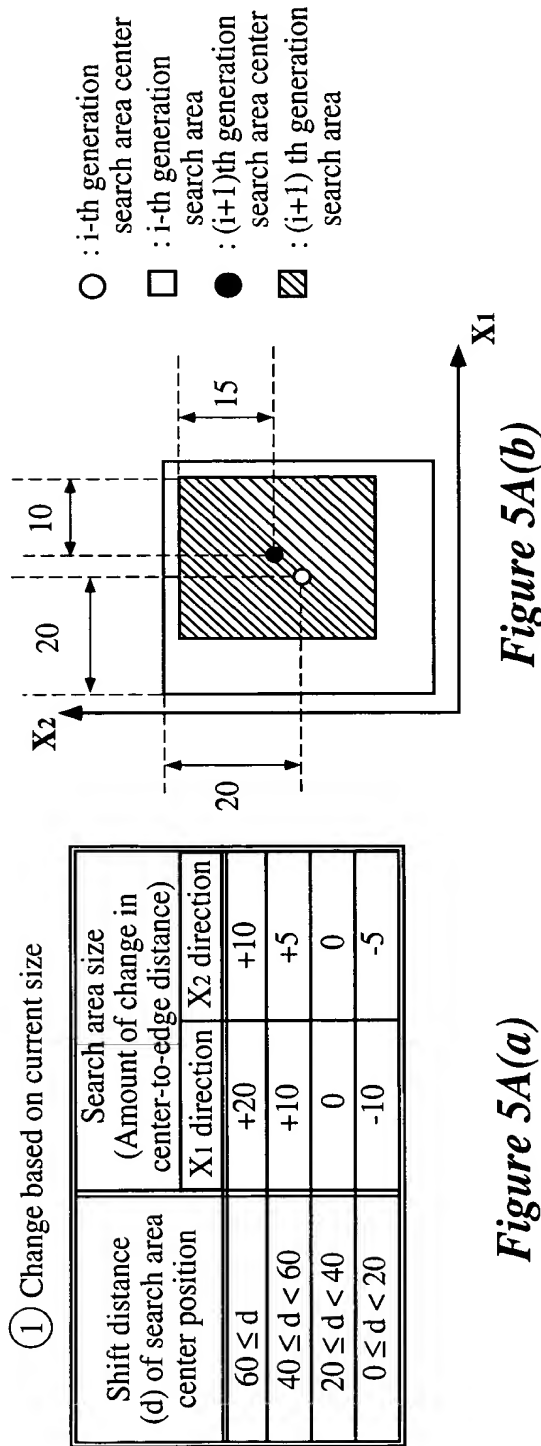
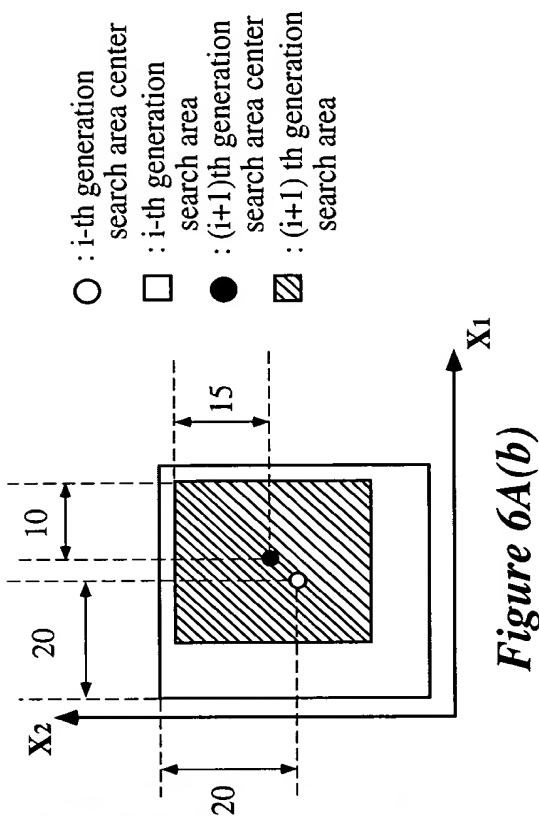


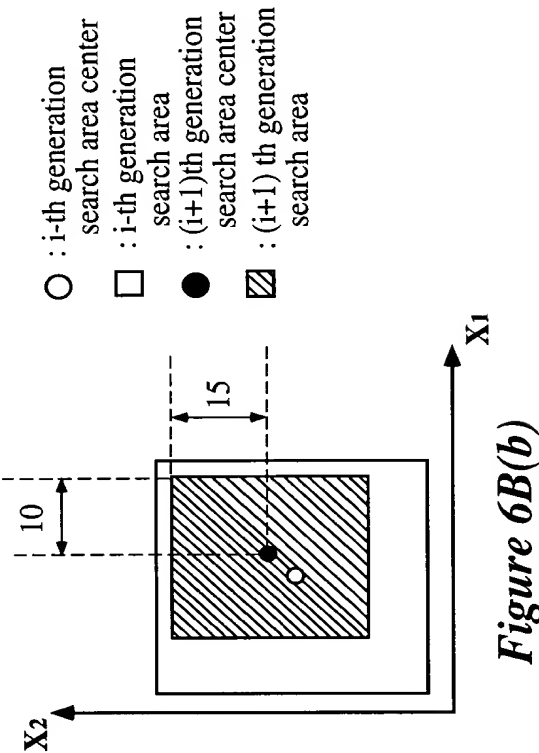
Figure 4B(a)





Center position of next generation search area in current search area	Search area size (Amount of change in center-to-edge distance)	
	X1 direction	X2 direction
In area from 75% to 100%	+20	+10
In area from 50% to 75%	+10	+5
In area from 25% to 50%	0	0
In area from 0% to 25%	-10	-5

Figure 6A(a)



Center position of next generation search area in current search area	Search area size (Amount of change in center-to-edge distance)	
	X1 direction	X2 direction
In area from 75% to 100%	25	30
In area from 50% to 75%	20	25
In area from 25% to 50%	15	20
In area from 0% to 25%	10	15

Figure 6B(a)

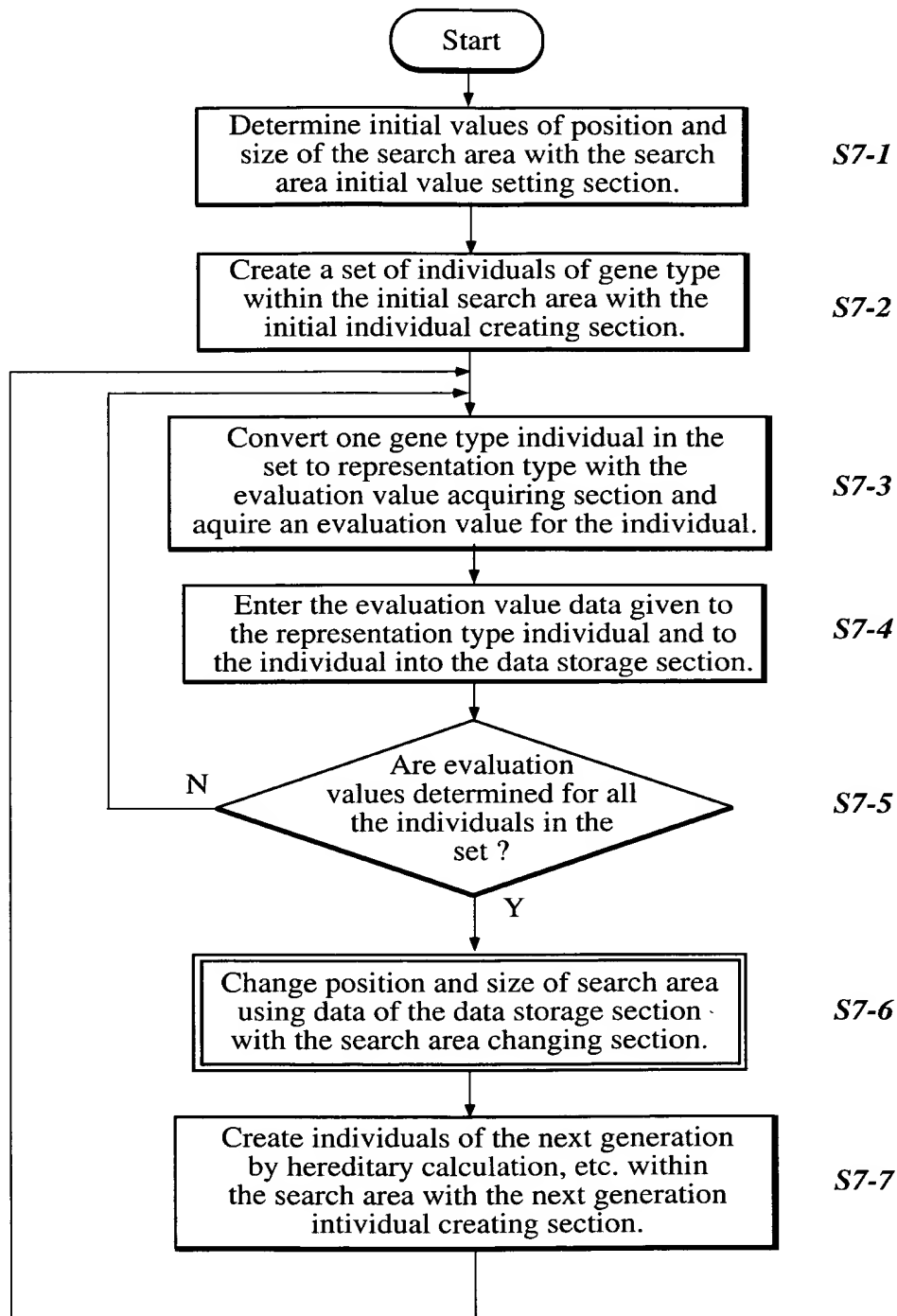


Figure 7

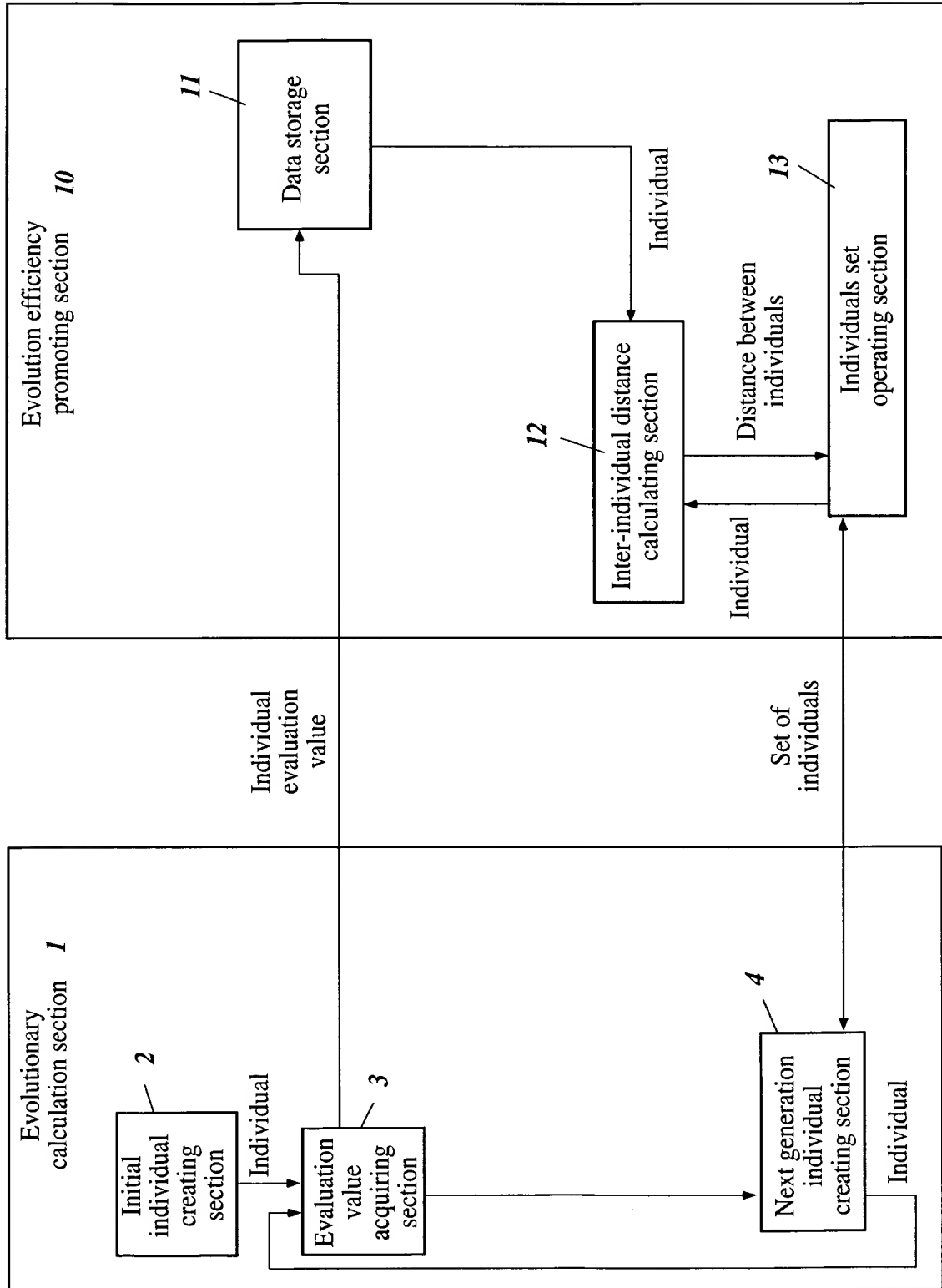


Figure 8

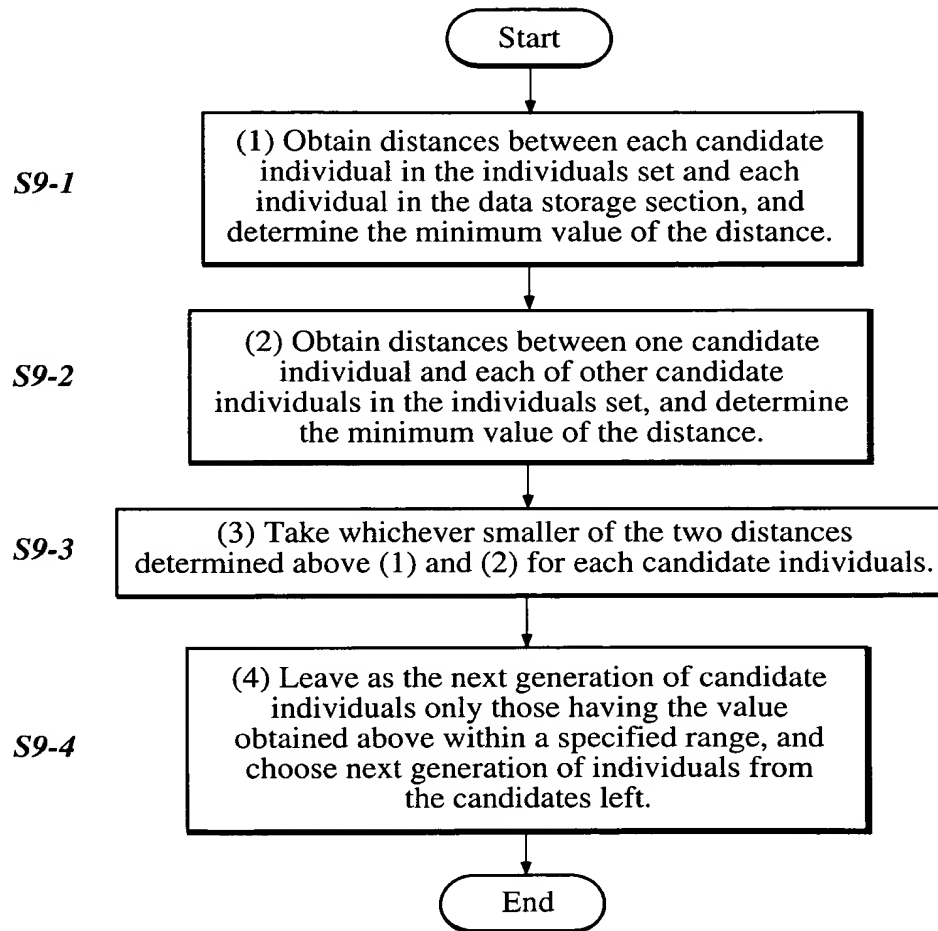


Figure 9

Figure 10(a)

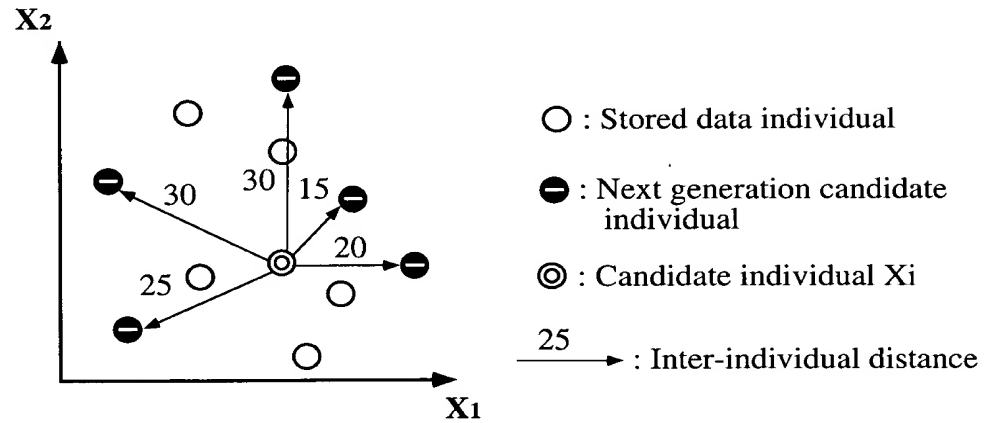
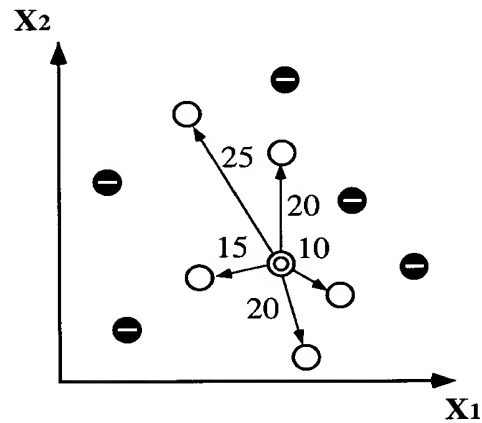


Figure 10(b)



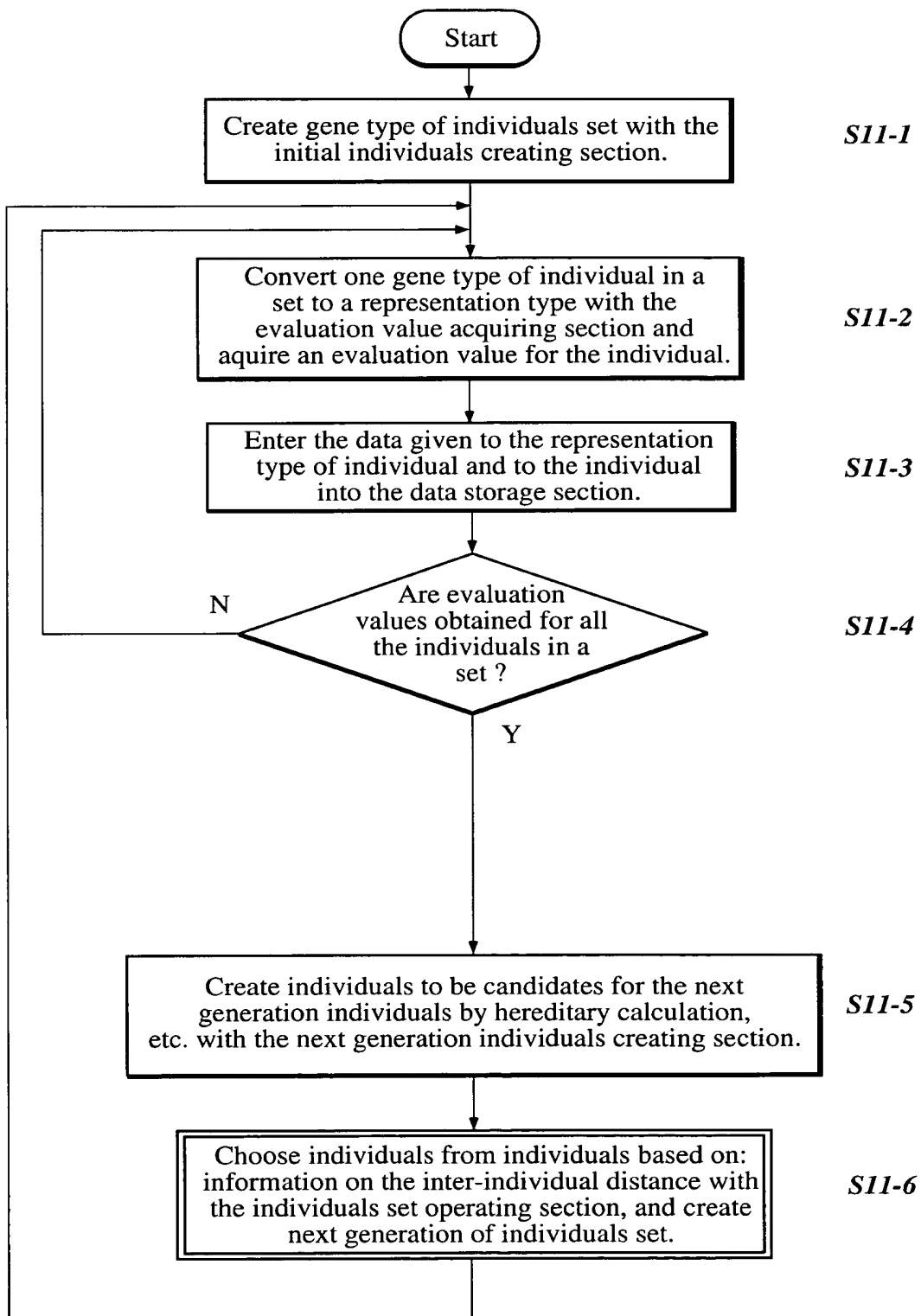


Figure 11

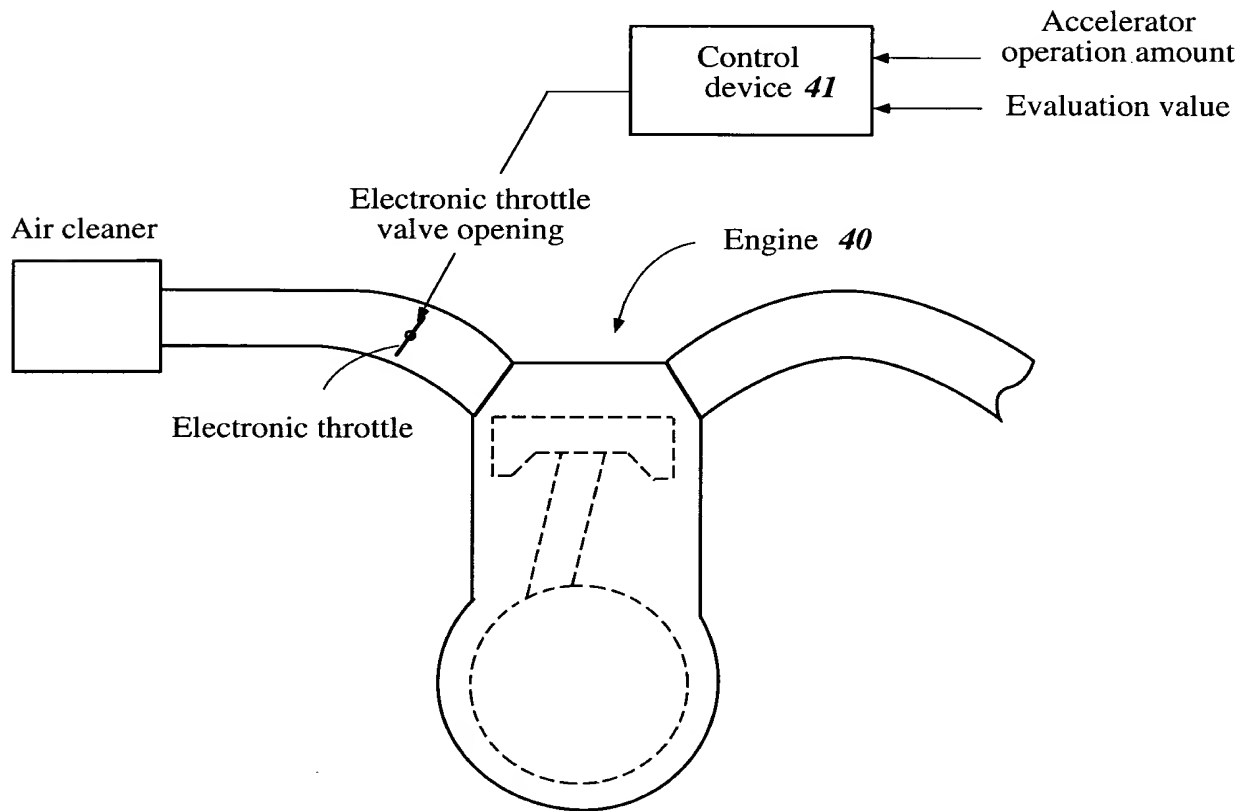


Figure 12

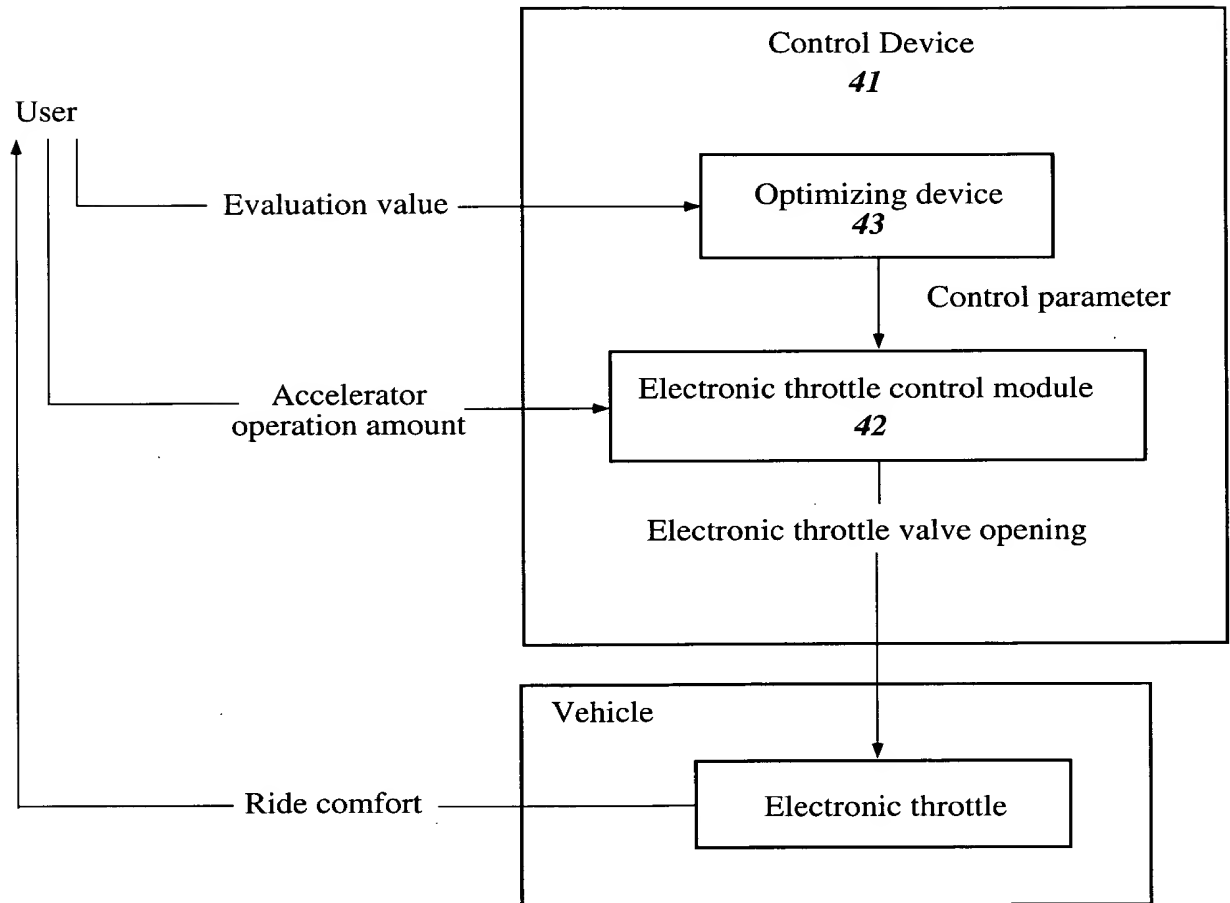


Figure 13

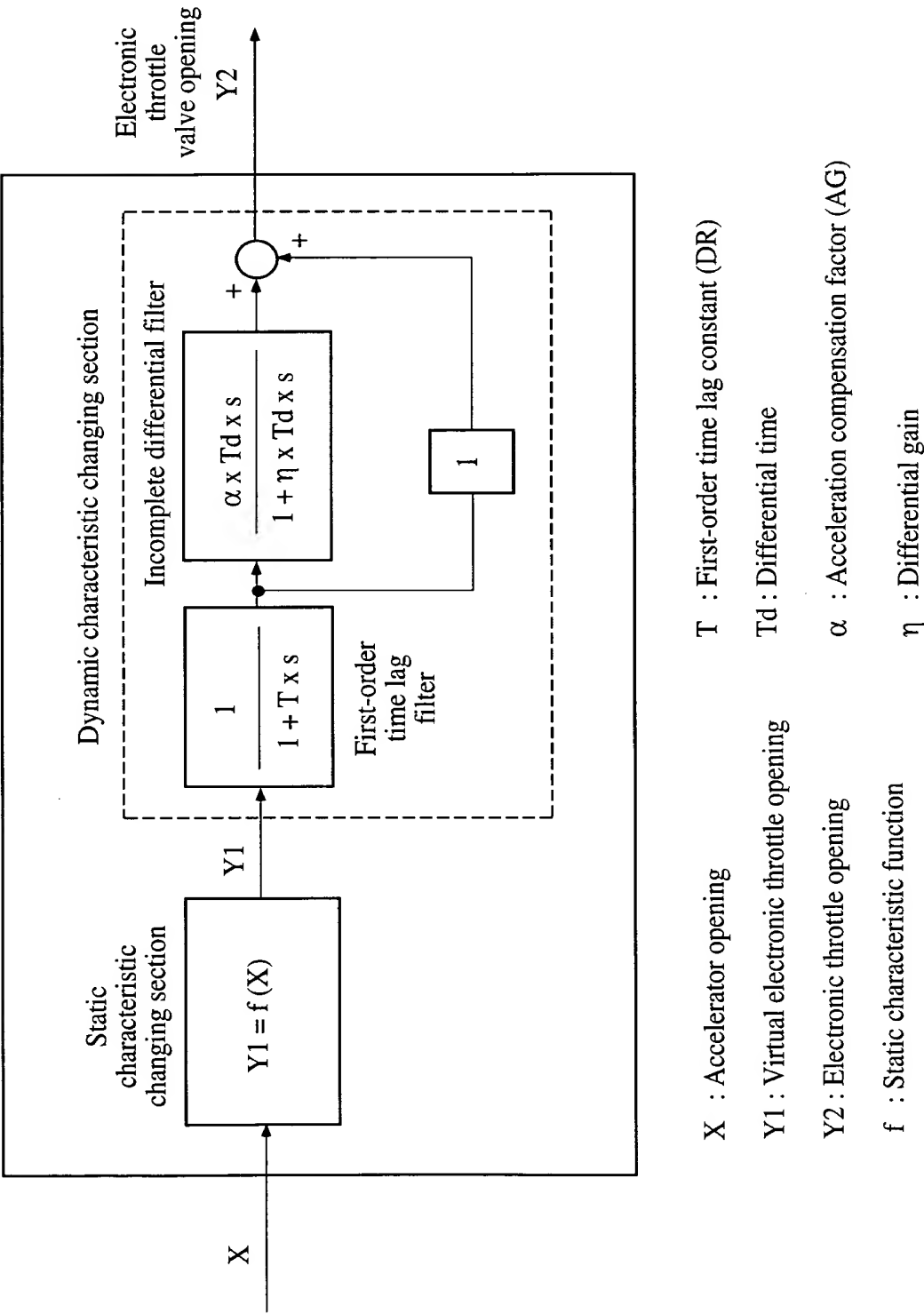


Figure 14

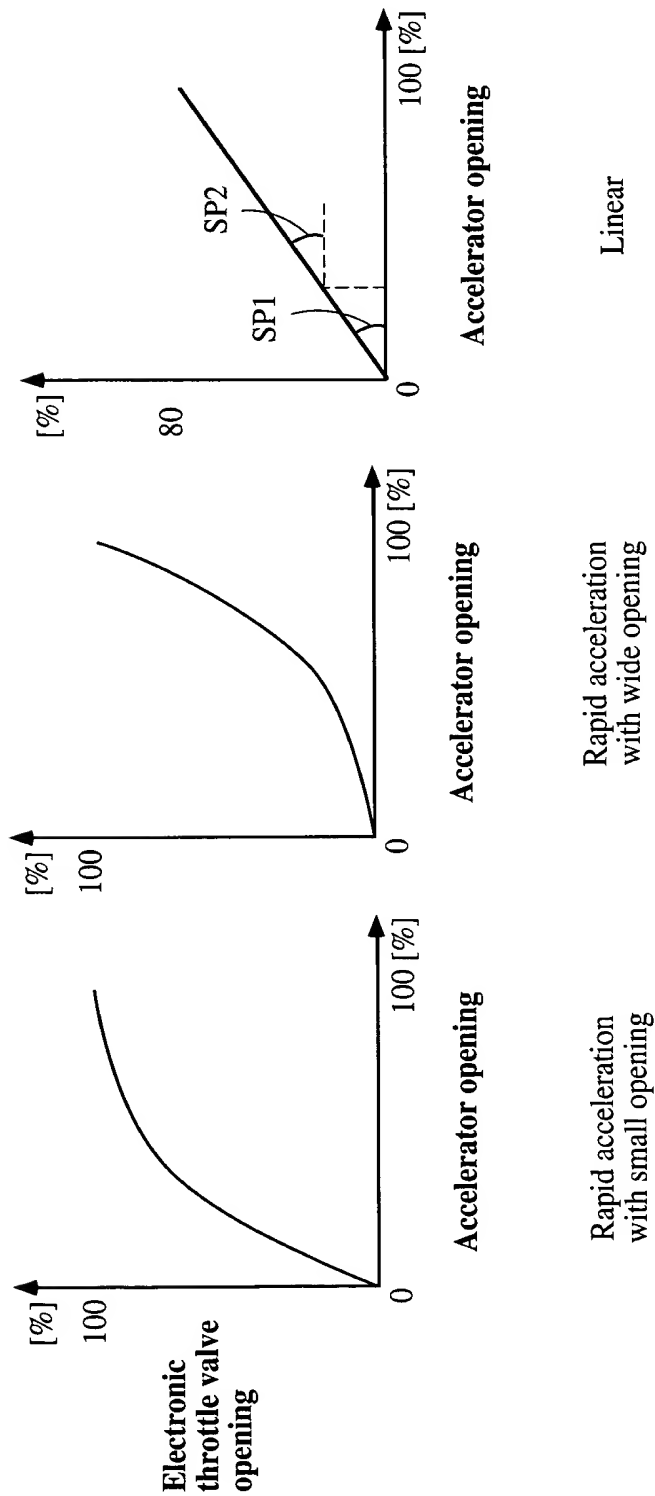


Figure 15(a)

Figure 15(b)

Figure 15(c)

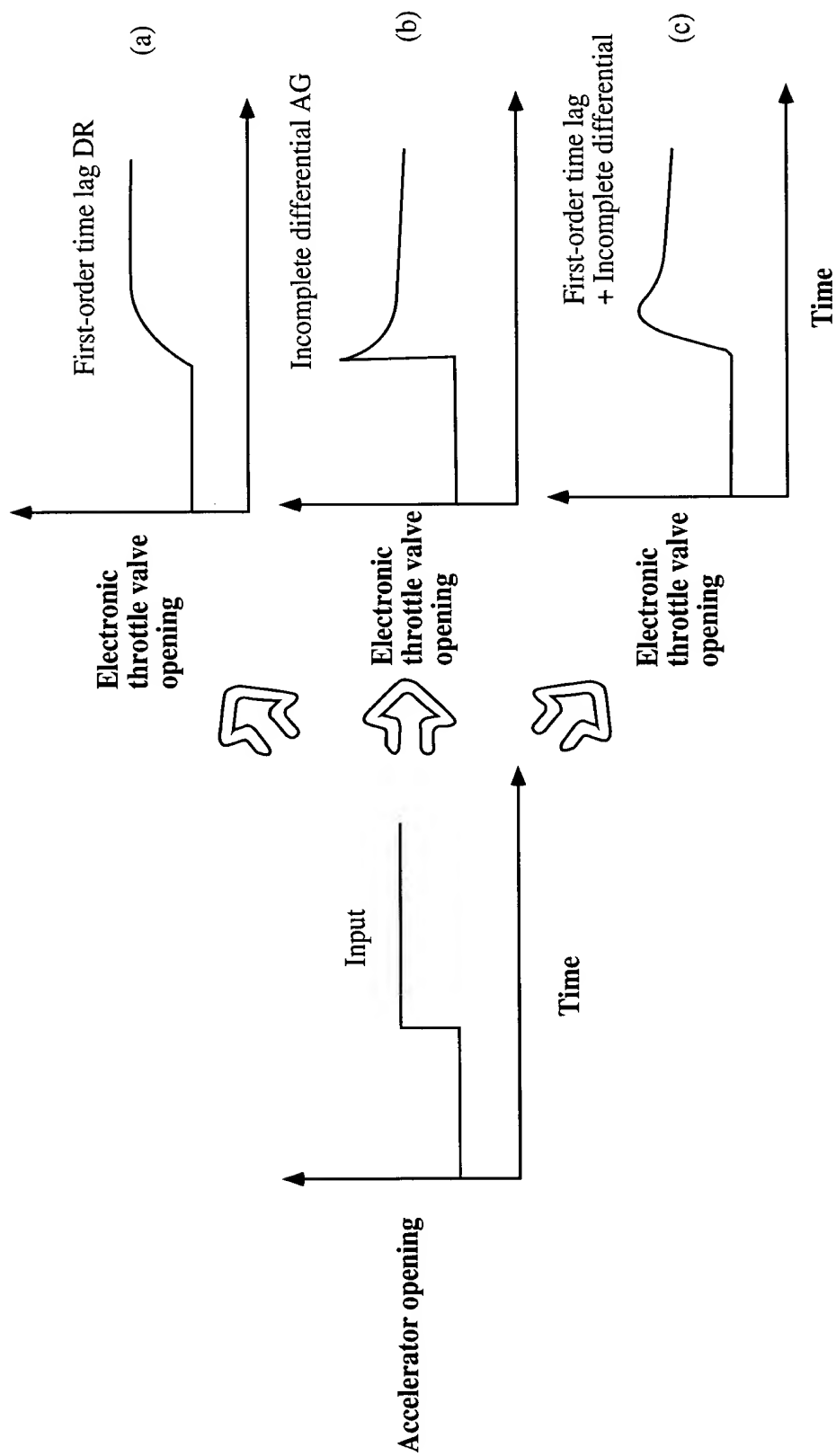


Figure 16

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SP ₁	SP ₂	DR	AG
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Figure 17

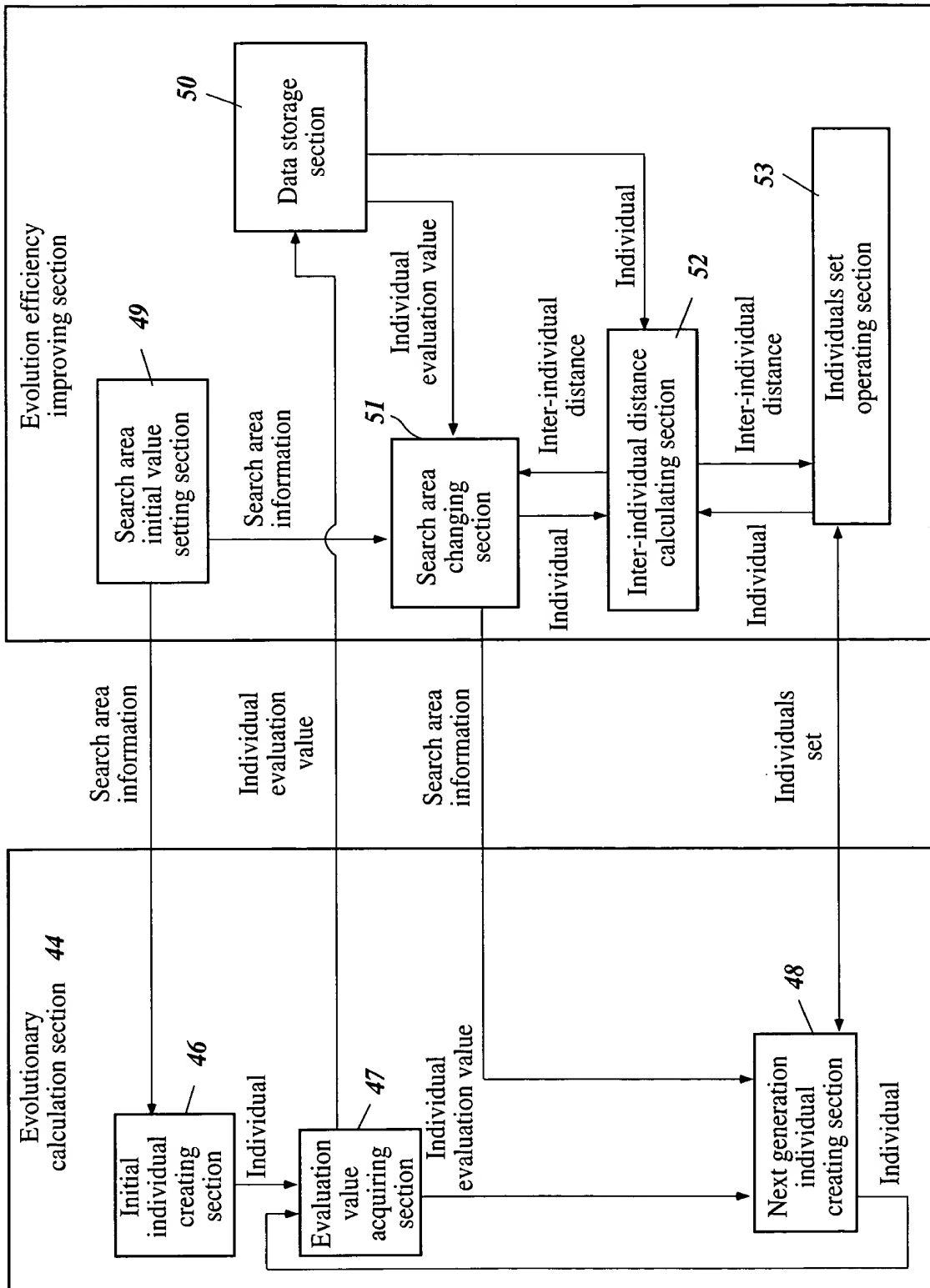


Figure 18

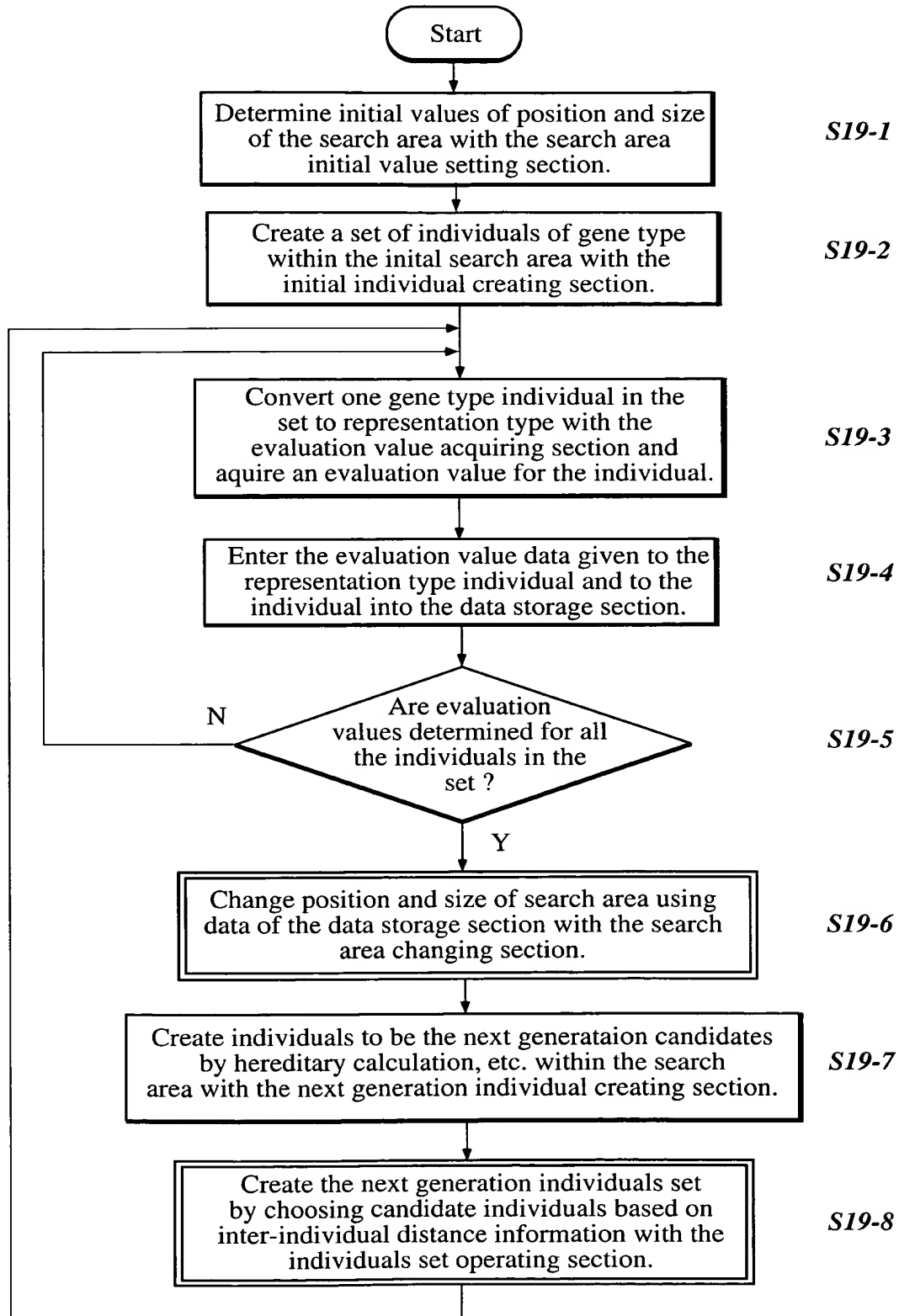


Figure 19

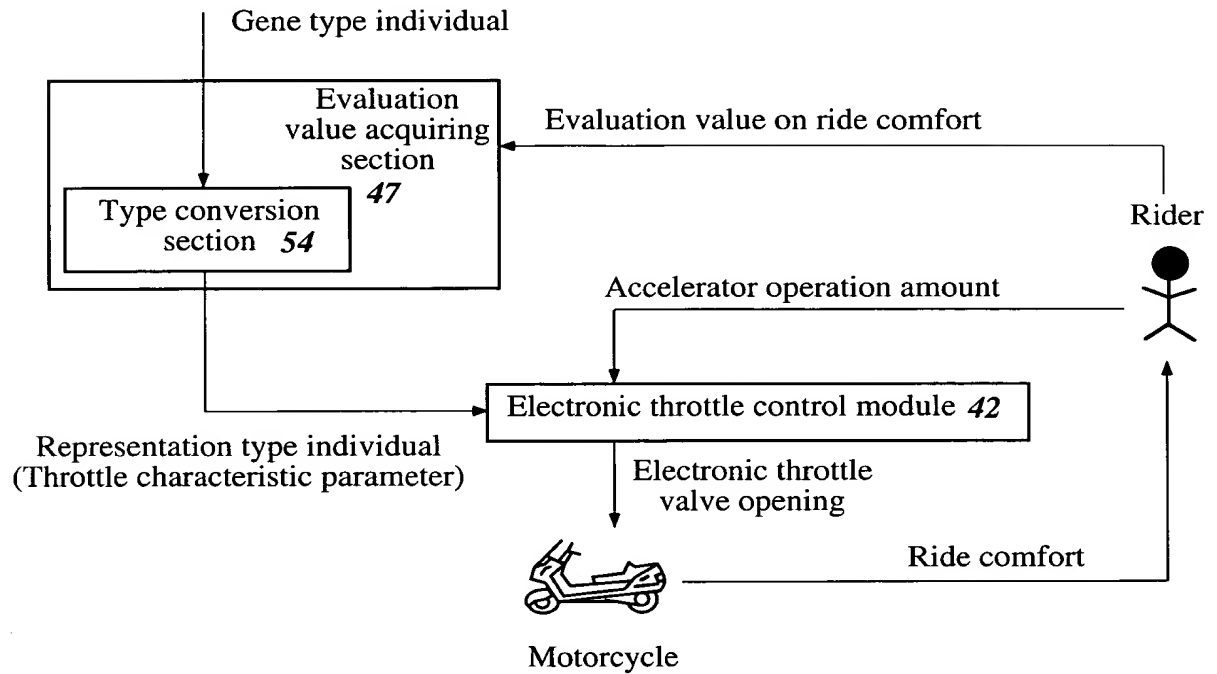


Figure 20

① : Change by best evaluation value

(Determine irrespective of current search area size)

Figure 21(a)

Best evaluation value Y	Size of next generation search area (Center-to-edge distance)			
	SP1	SP2	DR	AG
$0 \leq Y < 50$	25	25	30	30
$50 \leq Y < 70$	20	20	25	25
$70 \leq Y < 90$	15	15	20	20
$90 \leq Y \leq 100$	10	10	15	15

② : Change by best evaluation value

(Change based on current search area size)

Figure 21(b)

Best evaluation value Y	Search area size (Amount of change in center-to-edge distance)			
	SP1	SP2	DR	AG
$0 \leq Y < 50$	+5	+5	+5	+5
$50 \leq Y < 70$	0	0	0	0
$70 \leq Y < 100$	-5	-5	-5	-5

Create the next generation candidate individuals at constant intervals in all-inclusive manner within the search area.

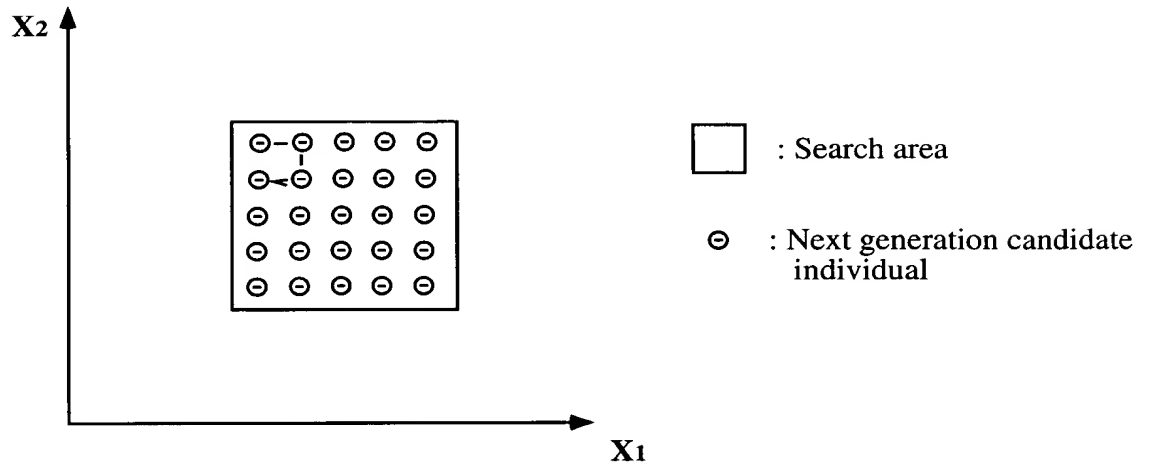


Figure 22

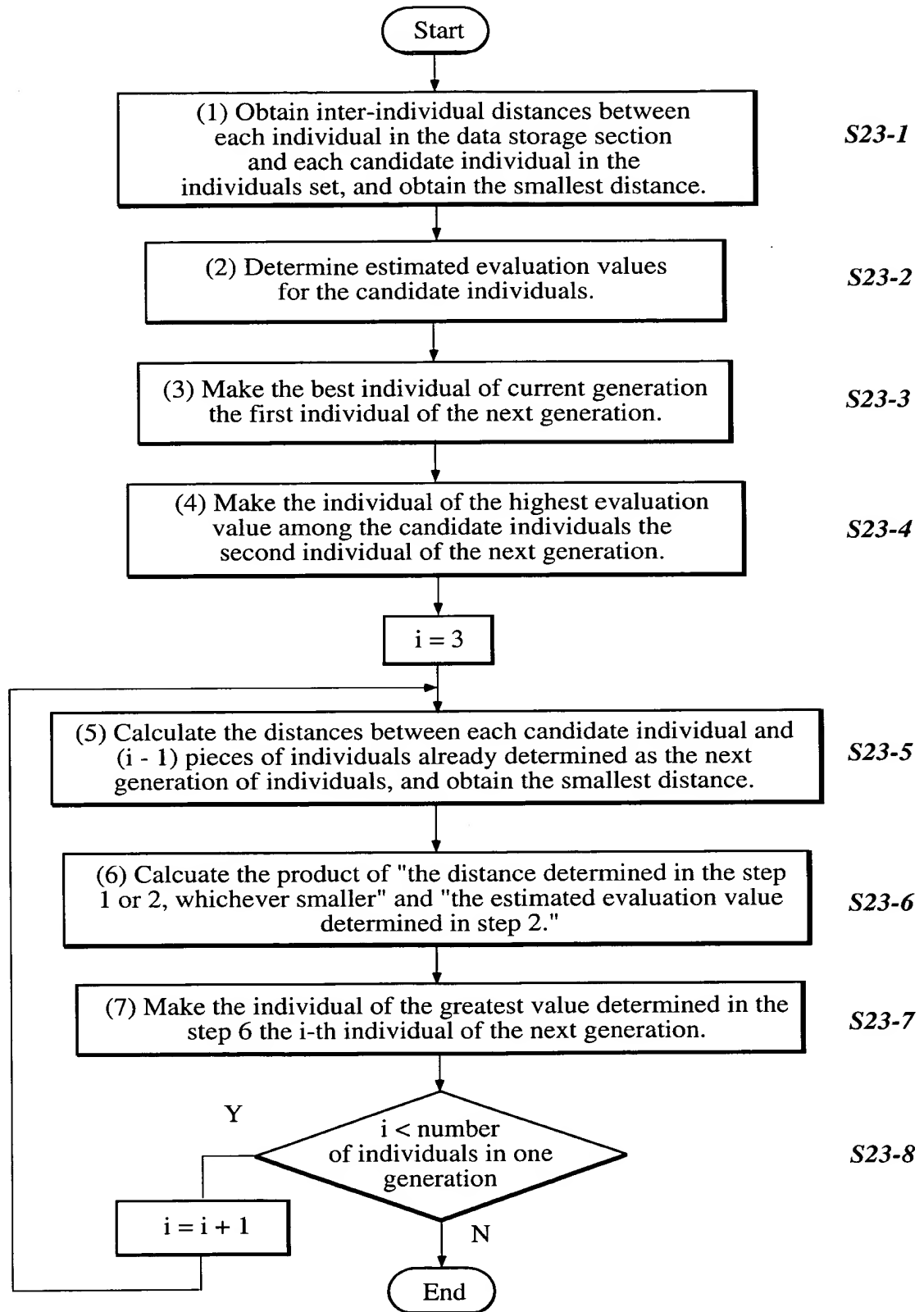


Figure 23

(60) : Estimated evaluation value

○ : Individuals created so far.
(Individuals in the data storage section)

⊙ : Next generation candidate individuals

● : Individuals chosen for the next generation

→ : Inter-individual distance

Figure 24(a)

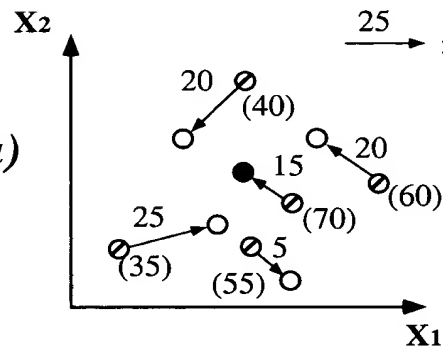


Figure 24(b)

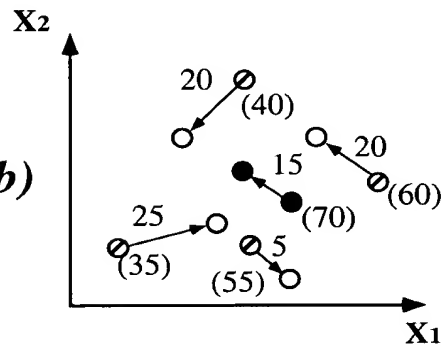


Figure 24(c)

